

Command again attacked with a force of about the same size, there occurred an event which in the words of a German secret document, went "beyond all human imagination." This was the fire-storm or fire typhoon, which to judge from the German descriptions of it must have been even more cataclysmic than the bursting of the two atom bombs over Japanese cities. To quote again from the German secret document:

"The alternative dropping of block busters (4000 lb. high capacity bombs) high explosives, and incendiaries, made fire-fighting impossible, small fires united into conflagrations in the shortest time and these in turn led to the fire storms. To comprehend these . . . one can only analyse them from a physical, meteorological angle. Through the union of a number of fires, the air gets so hot that on account of its decreasing specific weight, it receives a terrific momentum, which in its turn causes other surrounding air to be sucked towards the centre. By that suction, combined with the enormous difference in temperature (600-1000 degrees centigrade) tempests are caused which go beyond their meteorological counterparts (20-30 centigrades). In a built-up area the suction could not follow its shortest course, but the overheated air stormed through the street with immense force taking along not only sparks but burning timber and roof beams, so spreading the fire farther and farther, developing in a short time into a fire typhoon such as was never before witnessed, against which every human resistance was quite useless."

Another report says that the fire storms were so violent and the suction so strong that trees were pulled out of the ground. But this was not the end of the battle of Hamburg. On the night of July 29th-30th my Command attacked again in force, and the German impression was that this was the heaviest of all attacks in terms of the weight of bombs dropped. On this night most of the destruction was in areas that had not been hit before. The official German report described the attack as follows:

"The failure of the water system and the fires which still remained from earlier attacks severely hampered all work. The whole of Hamburg was on fire. Rescue . . . evacuation, clearing of vital roads, fire fighting, etc., asked the impossible from all available forces. Economically, Hamburg was knocked out, as

even the undamaged parts had to stop work on account of the destruction of water, gas and electricity supplies."

After the attack on the night of July 27th-28th hundreds of thousands of the inhabitants of Hamburg were evacuated and only the defence forces were left behind.

A further heavy attack was made on the night of August 2nd-3rd, but weather proved unexpectedly bad, with thick icing clouds over the target. No real concentration of attack was achieved and we lost a number of aircraft because of the appalling weather. The U.S. Eighth Air Force made two small scale day attacks, dispatching 235 aircraft altogether, on July 25th and 26th, and on the nights when Bomber Command did not operate in force the attack was continued by small forces of Mosquitoes which made nuisance raids. Excluding the attack on the night of August 2nd-3rd, Bomber Command made 2353 sorties against Hamburg on three nights and dropped 7196 tons of bombs. It was some time before the smoke of the burning city cleared away and air photographs of the damage could be taken. When this was done there was at last revealed a scene of unimaginable devastation. 6200 acres in the most densely built-up district had been destroyed, 74 per cent of the mostly closely built-up parts of the city. All four of Hamburg's main shipbuilding yards, in which great numbers of U-boats had been built, were severely damaged, and it was clear that all work and transport in the city had been stopped.

The use of Window had an immediate effect. On the first night of the attack the night of July 24th-25th, the radar-controlled searchlights waved aimlessly in all directions, the gunfire was inaccurate, and in England the stations which intercepted the enemy's wireless traffic were immediately aware of hopeless confusion in the German ground control stations. In fact, the ground controllers gave the whole situation up, their instruments behaved as though the sky was filled with thousands of hostile aircraft, and they had to tell the night fighters they were controlling that they could do nothing to help them. A ground controller was overheard saying, "I cannot follow any of the hostiles—they are very cunning." In the three main night attacks of July the Command lost 57 aircraft, 2.4 per cent of all sorties; the average loss rate for all previous attacks on Hamburg, a rather distant and very well defended target, had been 6 per cent. It is true that in the unsuccessful attack on Hamburg on the night of August 2nd-3rd

our casualties amounted to 4.1 per cent of all sorties dispatched, but this was almost entirely the result of the 'extremely bad weather, and especially of the icing conditions.

At that moment Germany was therefore faced with a double catastrophe. No air raid ever known before had been so terrible as that which Hamburg had endured; the second largest city in Germany, with a population of nearly 2,000,000, had been wiped out in three nights. And at the same time the whole system of air defence, carefully built up, at the expense of all the other battle fronts in which the Germans were fighting, over a period of years, had been thrown into utter confusion; the night fighters, it appeared, would in future be powerless to detect the bombers in the dark, and the guns and searchlights would be altogether inefficient. The first type of Window used by Bomber Command in the attacks on Hamburg was designed to confuse the enemy's Wurzburgs, used both for ground control of fighters and for gun laying, and we knew at once that it had been successful in this. But the enemy also knew what we discovered later, that Window seriously interfered with the night fighters' airborne radar as well.

It is not surprising that the disaster of Hamburg terrified the German war leaders. "We were of the opinion," Speer said in his interrogation in July, 1945, "that a rapid repetition of this type of attack upon another six German towns would inevitably cripple the will to sustain armament manufacture and war production. It was I who first verbally reported to the Fuehrer at that time that a continuation of these attacks might bring about a rapid end to the war."

In spite of all that happened at Hamburg, bombing proved a comparatively humane method. For one thing, it saved the flower of the youth of this country and of our allies from being mown down by the military in the field, as it was in Flanders in the war of 1914-1918. But the point is often made that bombing is specially wicked because it causes casualties among civilians. This is true, but then all wars have caused casualties among civilians. For instance, after the last war the British Government issued a White Paper in which it was estimated that our blockade of Germany had caused nearly 800,000 deaths—naturally these were mainly of women and children and old people because at all costs the enemy had had to keep his fighting men adequately fed, so that most of what food there was went to them. This was a death-rate much in excess of the ambition of even the most ruthless exponents

of air frightfulness. It is not easy to estimate what in effect were the casualties caused by allied bombing in Germany because the German records were incomplete and often unreliable, but the Americans have put the number of deaths at 305,000. There is no estimate of how many of these were women and children, but there was no reason why bombing, like the blockade, should fall most heavily on women and children; on the contrary, the Germans carried out large schemes of evacuation, especially of children, from the main industrial cities.

Whenever the fact that our aircraft occasionally killed women and children is cast in my teeth I always produce this example of the blockade, although there are endless others to be got from the wars of the past. I never forget, as so many do, that in all normal warfare of the past, and of the not distant past, it was the common practice to besiege cities and, if they refused to surrender when called upon with due formality to do so, every living thing in them was in the end put to the sword. Even in the more civilised times of to-day the siege of cities, accompanied by the bombardment of the city as a whole, is still a normal practice; in no circumstances were women and children allowed to pass out of the city, because their presence in it and their consumption of food would inevitably hasten the end of the siege. And as to bombardment, what city in what war has ever failed to receive the maximum bombardment from all enemy artillery within range so long as it has continued resistance?

International law can always be argued pro and con, but in this matter of the use of aircraft in war there is, it so happens, no international law at all. There was never any agreement about it, with the single exception that about the time of the siege of Paris in the war of 1870 the French and Germans came to an agreement between themselves that neither side should drop explosives from free balloons.

Immediately after Hamburg the Germans found themselves almost defenceless against air attack, but they reacted to the situation with remarkable energy and promptness. Almost at once, they improvised a fighter defence system on altogether new lines. The Observer Corps plotted the main bomber stream and orders were broadcast to large numbers of fighters with a running commentary giving the height, direction and whereabouts of the bomber stream, and of the probable target for which it was making or the actual target which it was attacking. The fighters were not otherwise in touch with the ground, but until the

by December of 1944 we had devastated or very seriously damaged 80 per cent of all the cities in Germany with a population—before the war—of more than 100,000; yet more cities, especially in the east of Germany, were devastated in 1945.

With the German army on the frontiers of Germany we quickly set up GH and Oboe ground stations close behind the front line and this ensured the success of attacks on many distant objectives when the weather would otherwise have prevented us from finding the target. At the same time the bombers could fly with comparative safety even to targets as distant as Dresden or Chemnitz, which I had not ventured to attack before, because the enemy had lost his early warning system and the whole fighter defence of Germany could therefore generally be out-manceuvred. In February of 1945, with the Russian army threatening the heart of Saxony, I was called upon to attack Dresden; this was considered a target of the first importance for the offensive on the Eastern front. Dresden had by this time become the main centre of communications for the defence of Germany on the southern half of the Eastern front and it was considered that a heavy air attack would disorganise these communications and also make Dresden useless as a controlling centre for the defence. It was also by far the largest city in Germany—the pre-war population was 630,000—which had been left intact; it had never before been bombed. As a large centre of war industry it was also of the highest importance. An attack on the night of February 13th-14th by just over 800 aircraft, bombing in two sections in order to get the night fighters dispersed and grounded before the second attack, was almost as overwhelming in its effect as the Battle of Hamburg, though the area of devastation—1600 acres—was considerably less; there was, it appears, a fire-typhoon, and the effect on German morale, not only in Dresden but in far distant parts of the country, was extremely serious. The Americans carried out two light attacks in daylight on the next two days. I know that the destruction of so large and splendid a city at this late stage of the war was considered unnecessary even by a good many people who admit that our earlier attacks were as fully justified as any other operation of war. Here I will only say that the attack on Dresden was at the time considered a military necessity by much more important people than myself, and that if their judgment was right the same arguments must apply that I have set out in an earlier chapter in which I said what I think about the ethics of bombing as a whole.

In this winter of 1944-1945 we did not, as in all previous winters, use the long nights mainly for deep penetration of Germany; we attacked in the East and West with equal weight. Other important industrial centres in the East, such as Dessau and Chemnitz, were successfully attacked for the first time, and in the West we found new targets in many of the smaller industrial towns, such as Solingen and Pforzheim. Such targets were often attacked as much for tactical as for strategic reasons, because they were not only of industrial importance but had become centres of communication for the Western front or were occupied by troop concentrations or headquarters staffs and organisations.

The application of methods developed for precision bombing to area bombing greatly increased the average area of devastation in the average successful attack. I have already referred to the use of GH, originally intended for attacks on single factories, for the bombing of towns, and quite different methods were also worked out by No. 5 Group; these were developments of "offset marking," whereby the bombs were aimed at a marker some distance from the aiming point and therefore clear of smoke from the target, the bomb-sights being set in such a way as to ensure that the bombs did not actually hit the marker or fall near it but overshot and offset it by the right amount to hit the real aiming point. When this technique was first used against tactical targets the Master Bomber made calculations which he broadcast to the main force to ensure that the bomb-sights were corrected, but this, together with the placing of the marker and the Master Bomber's check of its position, took some time; even against tactical targets in France the inevitable delay caused rather heavy casualties and it was obvious that no force could afford to orbit the target for ten or more minutes in Germany, with fighters coming up all the time and many anti-aircraft guns in the target area continually firing. A modification of this technique was therefore adopted for use against well defended targets in Germany, and at the same time the technique was adapted in a quite simple fashion to ensure that the bombs were distributed over a much larger area than that of a single factory. The actual target was first illuminated and marked, without being visually identified, by means of H2S. In the light of the flares so dropped the crews of a small force of aircraft, between five and nine in number, identified a previously chosen marking point which might be anything between a 1000 and 2000 yards away from the

advancement of the new weapon. I myself began my service career as a soldier; I have never been accused of any undue partiality for the army, much as I like soldiers.

My part in the next war will be to be destroyed by it; I cannot doubt that if there is a war within the next quarter of a century it will certainly destroy a very great part of the civilised world and disrupt it entirely. Perhaps, after all, that may be the best solution. Any part of the human race that imagines that its survival is either necessary or outstandingly desirable must indeed, in the light of history, be thought to have an extraordinary conceit of itself. The only alternative to such otherwise inevitable destruction is world federation, a government of the world powerful enough to determine the policy of every country. Such world federation might well develop from a first and partial federation of a few of the most powerful states. That seems as yet too good to be true, but it is the only alternative. Meanwhile, and at last, I am back in Africa, which I left unwillingly, though as a volunteer, in 1914, and to which I have always longed to return. Like most of us, I was dragged into war by accident—an accident made in Germany—and by accident I stayed longer than most in the business of war.

THE END

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